

REMARKS

This is in response to the Office Action mailed November 23, 2007. Claims 7-10, 12 and 13 are pending in the application. Claim 7 has been amended. Support for the amendment is found at page 2, para. 0009; and page 8, para. 0032-0036. Applicant respectfully requests reconsideration of the application based on the pending claims and the following remarks.

Rejection Under 35 U.S.C. 112

Claim 10 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Examiner contends that the term "substantially" renders the claim indefinite because "substantially" is relative language.

Applicant respectfully disagrees with the Examiner's contention. The phrase "substantially free" is an often used claim limitation that does not render the claim indefinite. A search of the USPTO database confirms that the phrase "substantially free" is very commonly used. As used in claim 10, one skilled in the art would understand the phrase to mean that that minor amounts of an organic solvent may be present so long as the solvent does not affect the aqueous dispersion characteristic of the coating composition. Applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. § 112.

Rejection Under 35 U.S.C. §102(b)

Claims 7-8, 10, and 12-13 have been rejected under 35 USC § 102(b) as being anticipated by Reischl et al (US 3,714,095). The Examiner contends that Reischl et al. teach a water-dispersible polyurethane resin comprising the reaction product of polyether and polyester polyol and aliphatic diisocyanate, and that although Reischl et al. do not explicitly teach the polyurethane useful in image transfer layers, based on a composition that is analogous to the claims, the polyurethane of Reischl et al. would inherently perform as a dye transfer layer.

Applicant respectfully disagrees with the Examiner's contention. Reischl et al. disclose an aqueous polyurethane dispersion comprising (a) a non-salt

containing polyisocyanate polyaddition product obtained from compounds containing hydroxyl and/or amino groups and organic polyisocyanates, and (b) a salt type polyisocyanate polyaddition compound, the weight ratio of (a) to (b) ranging from 99.5:1 to 2:3. (Reischl et al., column 1, lines 24-50.) The dispersion is produced by combining the non-salt containing polyisocyanate polyaddition product with a solvent, adding the salt type polyisocyanate polyaddition compound in the form of a solid or solution, effectuating salt formation by the addition of suitable acids, removing the solvent, and adding water to the solution to achieve the desired solids content of 60 percent. (Reischl et al., column 5, lines 49-57.) It is the conversion of the polyisocyanate polyaddition product with the salt-type polyisocyanate polyaddition compound that yields the dispersion. (Reischl et al., column 1, lines 50-56.) The non-salt polyisocyanate polyaddition product (a) is not water dispersible before conversion with the salt-type polyisocyanate polyaddition compound (b).

Claim 7, as amended, recites that the aqueous coating composition comprises (a) an aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) an aqueous dispersion of aliphatic polyester-urethane resin wherein the weight ratio of (a) to (b) is in the range of 1:1 to 3:1. The claimed coating comprises two distinct aqueous dispersions. Reischl et al. fail to disclose or teach such a coating. Rather, Reischl et al. teach the combination of a non-dispersible non-salt polyisocyanate and a salt-type polyisocyanate to form dispersions that sediment, but are capable of being redispersed. Furthermore, Reischl et al. fail to teach or suggest that any combination of the non-salt polyisocyanate and salt-type polyisocyanate would possess the requisite properties to allow the composition to function as a dye receiving coating. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 7-8, 10, and 12-13

Rejections Under 35 U.S.C. §103(a)

Claims 7-8, 10, and 12-13 have been rejected under 35 USC §103(a) as being unpatentable over Ramello et al. (US 5,529,972) and Bayer Otto et al (US 3,479,310) in view of Reischl et al. The Examiner contends that Ramello et al.

disclose a dye transfer coating composition comprising a water dispersible polyurethane resin and multifunctional cross-linking agent. The Examiner states that Ramello et al. cite Bayer Otto in explaining that the polyurethane resin is based on compounds which are the reaction product of linear polyether polyol, polyester, polyol, and aliphatic diisocyanate compounds. The Examiner acknowledges that while Ramello et al. and Otto Bayer teach a polyurethane having both polyester and polyether polyols in the polyurethane backbone, the amount of each polyol is not specified. The Examiner contends that Reischl et al. disclose a water dispersible polyurethane resin comprising polyether and polyester polyols corresponding to applicant's claimed amounts, and are said to exhibit improved dispersion stability and the ability to re-disperse quickly if the resin sediments. The Examiner contends that it therefore would have been obvious to separate the polyether and polyester resins of Ramello et al. in their corresponding amounts to obtain a final polyurethane that exhibits enhanced dispersion properties.

Applicant respectfully disagrees with the Examiner's contentions. Claim 7 recites that the aqueous coating composition includes (a) an aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) an aqueous dispersion of aliphatic polyester-urethane resin wherein the weight ratio of (a) to (b) is in the range of 1:1 to 3:1. Ramello et al. does not teach or suggest such a combination. Ramello et al. disclose a dye receiving layer that is an aqueous dispersion that includes a dye-accepting latex selected from polyurethane lattices, styrene-butadiene lattices, polyvinylacetoversatate lattices, and styrene-acrylic lattices. Ramello et al., however, does not disclose combining lattices in a dye receiving composition. The examples in Ramello et al. only employ a single latex in the dye receiving compositions, and there is no other teaching that the dye receiving composition should include the combination of a polyether-polyurethane resin and polyester-polyurethane resin.

Bayer Otto does not cure the deficiencies of Ramello et al. Bayer Otto discloses lattices that are the reaction product of an isocyanate and a polyhydroxyl where the polyhydroxyl may be a mixture of polyhydroxy compounds such as polyethers, polyesters, and polyacetals. Such a reaction

product provides a single polyurethane latex with both polyether and polyester groups on the backbone. In addition to failing to disclose the combination of the separate dispersions recited in claim 7, neither Ramello et al. nor Bayer Otto disclose any ratios of components let alone a specific ratio of polyether-polyurethane resin to polyester-polyurethane resin in the range of 1:1 to 1:3.

One skilled in the art would not look to Reischl et al. to cure the deficiencies of Ramello et al. or Bayer Otto. As discussed above, Reischl et al. is directed toward a single aqueous polyurethane dispersion comprising (a) a non-salt containing polyisocyanate polyaddition product obtained from compounds containing hydroxyl and/or amino groups and organic polyisocyanates, and (b) a salt type polyisocyanate polyaddition compound, said dispersion being useful in the formation of fine powders for various applications such as additives to polymers, as admixtures to paints and lacquers, as additives for lubricants, and as adhesives. Reischl et al. fail to disclose, teach, or suggest the combination of two distinct aqueous dispersions or that the non-dispersible non-salt polyurethane when combined with the salt type polyurethane may be used as a dye receiving coating. Furthermore, the polyurethane latex of Ramello et al. is not shown to be plagued by problems of dispersability, thereby negating a need to look to Reischl et al. for a solution.

Even if there were some motivation to combine the polyurethane latex of Ramello et al. with the polyurethane dispersion of Reischl et al., the resulting composition would not be the coating composition of claim 7. Neither reference, alone or in combination, nor the general knowledge of those skilled in the art, teach or suggest an aqueous coating composition that includes (a) an aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) an aqueous dispersion of aliphatic polyester-urethane resin wherein the weight ratio of the resin of (a) to the resin of (b) is in the range of 1:1 to 3:1. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 7-8, 10, and 12-13 under 35 USC §103(a).

Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ramello et al. and Otto Bayer et al. in view of Reischl et al. in

further view of Rhoades et al. (US 5,082,824). The Examiner contends that Ramello et al. in view of Reischl et al. renders obvious an aqueous dye receiving coating composition containing both polyester and polyether based polyurethane, and multifunctional cross-linking agent and that it would be obvious to include polyaziridine as the cross-linking agent in Ramello et al. based on the motivation that both compositions are water-dispersible polyurethanes that are in contact with dye compositions and polyaziridine improves the performance properties of the resulting cured coating.

Applicant respectfully disagrees. As discussed above, there is no motivation to combine Ramello et al. and Otto Bayer with the teachings of Reischl et al. Ramello et al. disclose a dye receiving layer that is an aqueous dispersion that includes one dye-accepting latex selected from one of the disclosed polyurethane latices, styrene-butadiene latices, polyvinylacetoversatate latices, and styrene-acrylic latices. Ramello, however, does not disclose combining latices in a dye receiving composition. Reischl et al. disclose the combination of a non-dispersible non-salt polyisocyanate and a salt-type polyisocyanate in the presence of a solvent to form a single dispersion taught to be useful in the formation of fine powders for various applications such as additives to polymers, as admixtures to paints and lacquers, as additives for lubricants, and as adhesives. Reischl et al. fail to disclose, teach, or suggest that any such combination may be used as a dye receiving coating.

Rhoades et al. do not cure the deficiencies of Ramello et al. Rather, Rhoades et al. disclose a receiver sheet made up of a supporting substrate, a receiving layer on one surface of the supporting substrate, and a dye-permeable release medium coated onto the receiving layer or incorporated into the receiving layer. (Col. 3, lines 11-23.) The receiving layer of Rhoades et al. comprises a polyester resin. (Col. 12, lines 30-47.) The dye-permeable release medium of Rhoades et al. is a silicone-urethane resin that may include an aziridine crosslinking agent (Col. 3, line 62-64, col. 6, lines 7-37). The silicon-urethane is dye-permeable, not dye receptive. It is the polyester layer that receives the dye.

Even if there were some motivation to combine the urethane-silicon resin crosslinked with polyaziridine of the dye release medium of Rhoades et al. with

the polyurethane latex of Ramello et al. as modified by the dispersion of Reischl, the resulting composition would not be the composition of claim 9. Neither reference, alone or in combination, nor the general knowledge of those skilled in the art, teach or suggest an aqueous coating composition that includes (a) an aqueous dispersion of aliphatic polyether-polyurethane resin, and (b) an aqueous dispersion of aliphatic polyester-urethane resin wherein the weight ratio of the resin of (a) to the resin of (b) is in the range of 1:1 to 3:1. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 9 under 35 USC §103(a).

Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Reischl et al. in view of Rhoades et al. The Examiner contends that Reischl et al. teach water-dispersible polyurethane that consists of polyether and polyester based resins and multi-functional chain extender, and that it would be obvious to modify Reischl et al. with polyaziridine as the cross-linking agent as disclosed in Rhodes et al. based on the motivation that both compositions are water-dispersible polyurethanes and polyaziridine improves the performance properties of the resulting cured coating.

Applicant respectfully disagrees with the Examiner's contention. As discussed above, Reischl et al. is directed toward an aqueous polyurethane dispersion comprising (a) a non-salt polyisocyanate polyaddition product obtained from compounds containing hydroxyl and/or amino groups and organic polyisocyanates, and (b) a salt type polyisocyanate polyaddition compound in a weight ratio of (a) to (b) from 99.5:1 to 2:3. The dispersion is produced by combining the polyisocyanate polyaddition product with a solvent, adding the salt type polyisocyanate polyaddition compound in the form of a solid or solution, effectuating salt formation by the addition of suitable acids, and adding water to the solution to achieve the desired solids content of 60 percent. It is the conversion of the polyisocyanate polyaddition product with the salt-type polyisocyanate polyaddition compound that yields the dispersion. The non-salt polyisocyanate polyaddition product (a) is not water dispersible before conversion with the salt-type polyisocyanate polyaddition compound (b).

Furthermore, Reischl et al. fail to disclose, teach, or suggest that the dispersion may be used as a dye receiving coating.

As discussed above, Rhoades et al. is directed to thermal transfer printing receiver sheets that include a dye-permeable release medium comprising a silicone-urethane resin that may include an aziridine crosslinking agent. Even if there existed some motivation or reasonable basis to modify the dispersion of Reischl by adding the aziridine crosslinking agent of the dye release coating of Rhoades et al., the resulting dispersion would not be the claimed dye receiving coating composition. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 9 under 35 USC §103(a).

### **CONCLUSION**

In view of the foregoing amendment and remarks, Applicants respectfully request reconsideration and a timely issuance of a notice of allowance for claims 7-10, 12 and 13.

In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to our Deposit Account No. 18-0988 under Attorney Docket No. AVERP3525USB.

Respectfully submitted,

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